REMARKS

Claims 1 – 8 and 17 – 21 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 103

Claims 17 – 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dominke et al. (WO 02/32742) in view of Ichimaru (U.S. Pat. No. 5,924,703). This rejection is respectfully traversed.

Claim 17 includes generating a digital control signal having multiple pulses, modifying the digital control signal by nulling blocks of control signal pulses consisting of at least one nulled pulsed per block to produce a dithered control signal and varying the output force generated by an actuator assembly in response to the dithered control signal. Dominke et al. fails to teach or suggest generating a digital control signal having multiple pulses, modifying the digital control signal by nulling blocks of control signal pulses consisting of at least one nulled pulsed per block to produce a dithered control signal and varying the output force generated by an actuator assembly in response to the dithered control signal and Ichimaru fails to cure the deficient teachings of Dominke et al..

Dominke discloses a steer-by-wire steering system including a steering motor LM or left and right steering motors LM_{vl} and LM_{vr}, respectively. A steering regulator 12 generates a voltage U_v, which is applied to a corresponding steering motor. In the case of a single steering motor LM, U_v is applied and in the case of multiple steering motors

LM_{vl} and LM_{vr} (i.e., left and right), U_{vl} and U_{vr} are applied, respectively (see Paragraphs [0035] and [0036] and Figures 3 and 4). A micro-computer RM generates U_V based on steering angles, motor torque, rotor position, phase currents, motor temperature and optionally, terminal voltage (see Paragraphs [0060] through [0067]). Other than stating that U_v can be provided as a PWM signal, Dominke does not teach or suggest nulling blocks of control signal pulses consisting of at least one nulled pulsed per block to produce a dithered control signal.

Although the Examiner cites signal g_{H11} and references Figure 11a in support of his assertion, a more accurate reading of Dominke illustrates that g_{H11} is one of three signals (g_{H11}, g_{H21} and g_{H31}) that are used to determine an enable signal m_{H1} (see Figure 10 in conjunction with Figures 11a – 11d). None of these signals influence U_v in any way. Therefore, Dominke does not teach or suggest nulling blocks of control signal pulses consisting of at least one nulled pulsed per block to produce a dithered control signal.

Ichimaru fails to cure the deficient teachings of Dominke et al.. More specifically, Ichimaru fails to teach or suggest modifying the digital control signal by nulling blocks of control signal pulses consisting of at least one nulled pulsed per block to produce a dithered control signal. Ichimaru discloses determining an applied current (i.e., a resultant signal) based on a command current and a dithering current. An amplitude D and frequency (f_o) of the dithering current are determined based on the command current (Col. 4, Lines 34 – 44). Ichimaru does not disclose nullifying pulses of the command current. Therefore, Ichimaru fails to teach or suggest the present invention

as claimed and reconsideration and withdrawal of the rejections are respectfully requested.

With regard to claims 18 – 21, Applicant notes that each is either directly or indirectly dependent on claim 17, which defines over the prior art as discussed in detail above. Therefore, claims 18 – 21 also define over the prior art for at least the reasons stated with respect to claim 17 and reconsideration and withdrawal of the rejections are respectfully requested.

ALLOWABLE SUBJECT MATTER

Applicants thank the Examiner for recognizing the allowable subject-matter of claims 1 – 8 and look forward to positive consideration of claims 17 – 21.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: March 9, 2005

By: _____
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